

Renergy, Inc. - Emerald
Analysis of Lagoon Volume Balance

Date	Entry	Volume, Gallons	Comments
May 18, 2021	Beginning Inventory		
	Lagoons	30,045,000	Renergy records, Emerald lagoon volume
	Digester	725,000	Renergy records, Emerald digester operations log
	Total material on site	30,770,000	
May 18, 2021 through March 9, 2022	Land applied material	-5,157,586	Renergy records
August 23, 2021	Digester contents from cleanout	750,000	tied to re-seed, estimate, to be added to EDMR 589
August 23, 2021	Water flush used for digester cleanout	250,000	tied to re-seed, estimate, to be added to EDMR 589
November 22, 2021	Digester contents from cleanout	325,000	tied to dome repair, estimate, to be added to EDMR 589
May 18, 2021 through December 31, 2021	Emerald dosing	1,721,581	Renergy records, to be added to EDMR 603
January 1, 2022 through March 9, 2022	Emerald dosing	397,975	Renergy records, to be added to EDMR 603
	Digested material from DVT added	396,000	Renergy records, Dovetail outbound material log
	Lagoon bioactivity maintenance water	600,000	Freshwater added from L6, two events
	Manure	2,187,530	8,367.3 tons at 7.65 lbs/gal
May 18, 2021 through March 9, 2022	Precipitation, less evaporation	2,105,808	Calculated baseds on EMD precipitation records and default pan evaporation rates
Total projected and accounted for		34,346,308	
March 9, 2022	Ending Inventory		
	Lagoons	32,050,000	
	Digester	726,387	
	Total material onsite	32,776,387	
	Absolute difference	1,569,921	gallons
	Percent difference	4.79	pct.

Reenergy, Inc. - Emerald **Analysis of Lagoon Volume Balance**

May 18, 2021 through March 9, 2002

31.3 inches

EMD rain gauge records

Default evaporation rate, inches	Total	Adjusted	
May 2021	5.73	2.40	13 days
June	6.59	6.59	
July	6.79	6.79	
August	5.90	5.90	
September	4.10	4.10	
October	3.01	3.01	
November	1.71	1.71	
December	1.08	1.08	
January	1.06	1.06	
February	1.23	1.23	
March 2022	2.55	0.74	9 days

Total estimated evaporation 34.61 inches

Pan/shallow lake evaporation adjustment (70 pct.) 24.23 inches

Amount of rain not evaporated 7.07 inches
0.59 feet

Total lagoon surface area 477,786 ft²
10.97 acres (43,560 ft²/acre)

Unevaporated volume 281,525 ft³
2,105,808 gal (7.48 gal/ft³)

Source of evaporation related data:

NOAA Technical Report NWS 34, Mean Monthly, Seasonal, and Annual Pan Evaporation
for the United States, December 1982

Table II, Columbus WSO, Monthly Means of Estimated "Pan Evaporation" Computed From Meteorological
Measurements Using a Form of the Penman Equation

TRC, 4/15/2022

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